

REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application.

Claims 1-9 are now present in this application. Claim 1 is independent. Claim 1 and the specification have been amended. Reconsideration of this application, as amended, is respectfully requested.

Reasons for Entry of Amendments

At the outset, it is respectfully requested that this Amendment be entered into the Official File in view of the fact that the amendments to the claims automatically place the application in condition for allowance.

In the alternative, if the Examiner does not agree that this application is in condition for allowance, it is respectfully requested that this Amendment be entered for the purpose of appeal. This Amendment reduces the issues on appeal by placing the claims in compliance with 35 U.S.C. § 112, 1st Paragraph, and by presenting arguments that effectively overcome the prior art of record.

Rejection Under 35 U.S.C. § 112, 1st Paragraph

Claims 1-9 stand rejected under 35 U.S.C. § 112, 1st Paragraph. This rejection is respectfully traversed.

The Examiner states that the original specification does not disclose "a semiconductor device comprising a homogeneous semiconductor substrate having a first conductivity type", as recited in claim 1.

In order to overcome this rejection, Applicants have amended claim 1 to recite "a semiconductor device comprising a semiconductor substrate having a first conductivity type".

Applicants respectfully submit that claim 1, as amended, is fully supported by and adequately described in the written description of the invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Rejection Under 35 U.S.C. § 102

Claims 1 and 3-9 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.K. Patent Application No. GB 2314974 to Kim. This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

Kim discloses three (3) embodiments related to a method of manufacturing a complimentary metal oxide semiconductor device. Applicants respectfully submit that each of the three embodiments include a substrate having a buried implanted layer beneath the twin wells. The buried implanted layer of Kim (shown in Fig.2) is nearly identical to the buried implanted layer of the Applicants' disclosed Related Art. By contrast, Applicants' independent claim 1 recites "wherein said substrate has no buried implanted layer beneath the twin wells", and is herein sharply distinguished from the three embodiments of Kim.

In particular, the Kim reference discloses that in the first embodiment, the buried implanted layer (impurity buried layer) is formed fairly early in the CMOS manufacturing process described therein (see page 8, lines 8-10). While the above-recited portion of Kim states that the buried implanted layer is "not shown" in Fig. 1A, it is shown in sufficient detail in Fig.2, and described on page 7, lines 6-10 as a "CMOS device according to the *preferred* first embodiment of the present invention, showing an impurity buried layer formed in a semiconductor substrate" (emphasis added).

Similarly, the placement of the step of forming the buried implanted layer according to the second preferred embodiment of Kim is set forth on page 12, line 4-6, and described with more particularity on page 14, lines 12-17 i.e., "In the same manner as the first embodiment . . . whereby an impurity-buried

layer is formed." Please note that page 11, line 9 and page 14, line 15 recites "is formed", while other portions recite "can be formed" or "may be formed". However, the "can be" and "may be" refers to the step at which the buried implanted layer is formed, or to the method of formation.

With regard to the third preferred embodiment, Kim discloses on page 15, lines 8-12, that the buried implanted layer is formed after forming the screen oxide film 42 in the same manner as the second embodiment (also see page 17, lines 7-9). Conclusively then, the buried implanted layer is included in each of the three embodiments disclosed in Kim.

Therefore, Kim fails to teach wherein said substrate has no buried implanted layer beneath the twin wells, as recited in independent claim 1. Claims 3-9 depend on independent claim 1, and therefore are patentable at least for the reasons stated with respect to independent claim 1. Reconsideration and withdrawal of this art grounds of rejection are respectfully requested.

Rejection Under 35 U.S.C. § 103

Claim 2 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of U.S. Patent No. 5,795,803 to Takamura et al. (Takamura). This rejection is respectfully traversed.

Kim, argued herein with respect to independent claim 1, fails to disclose or suggest wherein said substrate has no buried implanted layer beneath the twin wells. Takamura cannot fill this vacancy.

Claim 2 depends on independent claim 1. Since neither Kim, nor Takamura discloses or suggests the above-recited features of independent claim 1, Kim, in view of Takamura, cannot render claim 2 obvious to one of ordinary skill in the art. Reconsideration and withdrawal of this art grounds of rejection are respectfully requested.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Percy L. Square, Registration No. 51,084, at (703) 205-8034, in the Washington, D.C. area.

Prompt and favorable consideration of this Amendment is respectfully requested.


Attached hereto is a marked-up version of the changes made to the application by this Amendment.


Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), the Applicants respectfully petition for a one (1) month extension of time for filing a response in connection with the present application and the required fee of \$110.00 is attached herewith.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: Version with Markings to Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

Paragraph [001] has been amended as follows:

--[001] This application is a continuation of co-pending Application No. 09/488,549, filed on January 20, 2000, now abandoned, the entire contents of which are hereby incorporated by reference and for which priority is claimed under 35 U.S.C. § 120; and this application claims priority of Application No. 99/1909 filed in Korea on January 22, 1999 under 35 U.S.C. § 119.--

In the Claims:

The claims have been amended as follows:

1. (Twice Amended) A semiconductor device comprising:
a [homogeneous] semiconductor substrate having a first conductivity type; and
twin wells formed in adjacent regions of a surface portion of said semiconductor substrate,
a first of the twin wells having a second conductivity type formed in a first portion of the semiconductor substrate such that, in a direction of depth, a junction exists between the first twin well and said semiconductor substrate, and
a second of the twin wells having the first conductivity type formed in a second portion of the semiconductor substrate such that, in a direction of depth, a junction exists between the second twin well and said semiconductor substrate, wherein said substrate has no buried implanted layer beneath the twin wells, and said first and second wells have a substantially uniform junction depth at substantially all points where said junction exists.